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Coating apparatus

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- international: B05C11/10; F16K31/00; H01L21/00; B05C11/08;
B05C11/10; F16K31/00; H01L21/00; B05C11/08; (IPC1-
7): H01L21/30
- european: B05C11/10G; F16K31/00E; H01L21/00S2V
Application number: TW19980111736 19980718
Priority number(s): JP19970197227 19970723

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Abstract of TW421823B

In the present coating apparatus, a piezovalve driven by piezoelectric elements is used as an opening and closing valve 79. The use of the piezovalve which can nearly disregard delay time makes it possible to accurately control the time of operating the opening and closing valve 79 and to finely control working speed thereof at the time of opening and closing the valve. Therefore, operation necessary for closing the valve can be slowly performed, thus appropriately preventing dripping of a resist solution and occurrence of bubbles in a resist solution by air which enters from a forward end of a resist nozzle 60.

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WPI Acc No: 1999-184451/199916

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Resist coater for semiconductor wafer in image development system -
controls valve using piezoelectric element

Patent Assignee: TOKYO ELECTRON LTD (TKEL)

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Number of Countries: 005 Number of Patents: 006

Patent Family:

Patent No	Kind	Date	Applcat No	Kind	Date	Week	
JP 11033471	A	19990209	JP 97197227	A	19970723	199916	B
KR 99014090	A	19990225	KR 9829604	A	19980723	200018	
US 6113695	A	20000905	US 98119655	A	19980721	200044	
TW 421823	A	20010211	TW 98111736	A	19980718	200146	
KR 380666	B	20030707	KR 9829604	A	19980723	200409	
SG 115321	A	20051028	SG 982463	A	19980721	200578	

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Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 11033471	A	14		B05C-011/10	
KR 99014090	A			H01L-021/30	
US 6113695	A			B05C-007/02	
TW 421823	A			H01L-021/30	
KR 380666	B			H01L-021/30	Previous Publ. patent KR 99014090
SG 115321	A			H01L-021/027	

Abstract (Basic): JP 11033471 A

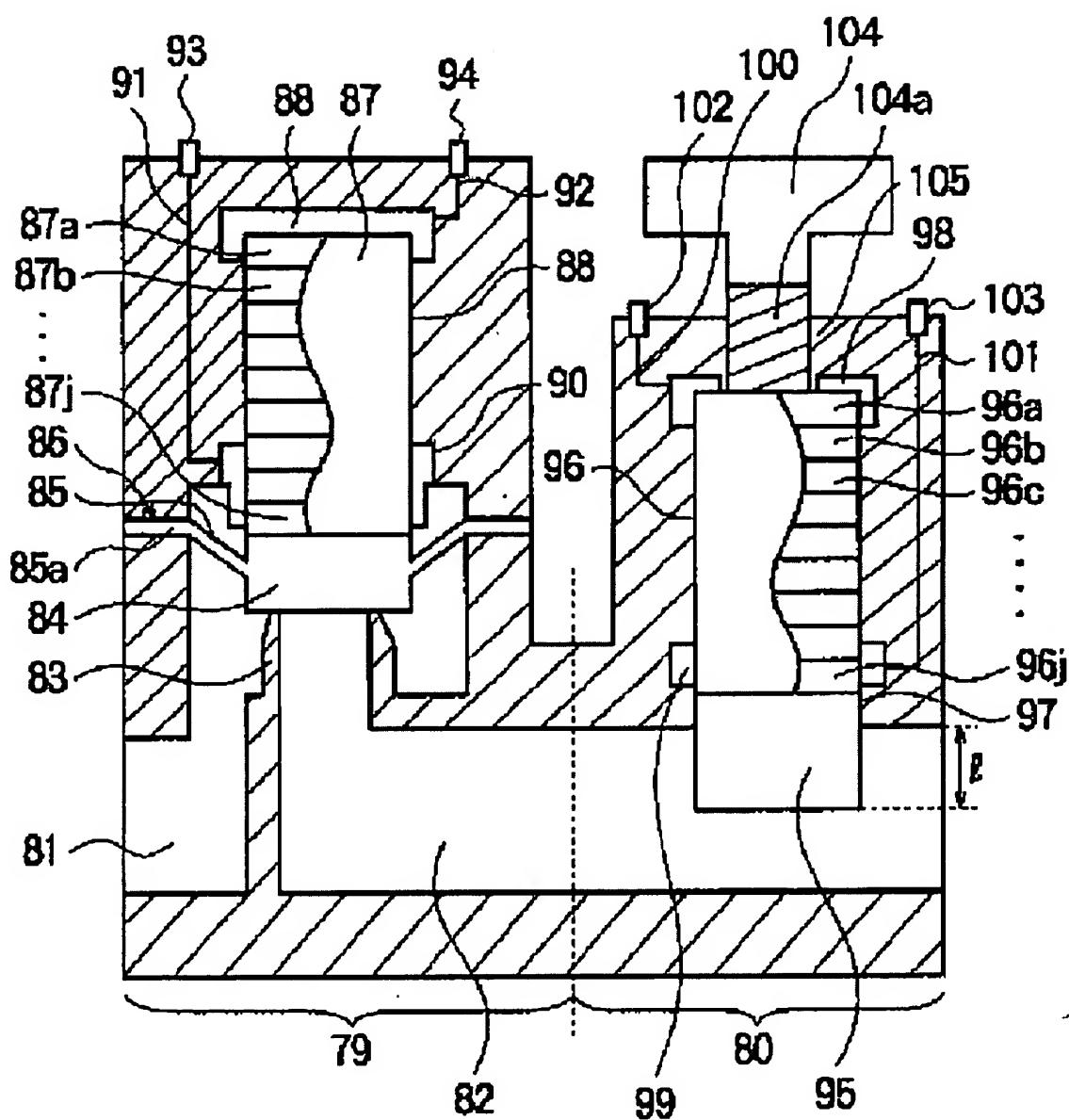
NOVELTY - Resist liquid accommodated in a tank is discharged through a resist nozzle to a substance. Liquid is pumped into the tank by a pump. The opening-closing of the valve (79) is electrically controlled by the piezoelectric element (87j).

USE - The image development system is used for forming resist pattern on wafer of semiconductor device.

ADVANTAGE - No formation of air bubbles even with the low resist liquid and also fine tuning of the operating speed of the valve by means of the piezoelectrically controlled system. DESCRIPTION OF DRAWING(S) - The figure illustrates the sectional view of the valve. (79) Opening-closing valve; (87j) Piezo-electric element.

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Title Terms: RESIST; COATING; SEMICONDUCTOR; WAFER; IMAGE; DEVELOP; SYSTEM;
CONTROL; VALVE; PIEZOELECTRIC; ELEMENT

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H01L-021/30

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